

REMARKS

This is intended as a full and complete response to the Office Action dated August 16, 2005, having a shortened statutory period for response set to expire on November 16, 2005.

Claims 1-12 and 14-21 are pending in the application and are shown above. Claims 18-21 stand withdrawn by the Examiner. Claims 1-18 stand rejected by the Examiner. Claim 13 has been cancelled by Applicants. Claims 1, 4, 9, 11-12 and 14 have been amended.

Reconsideration of the rejected claims is requested for reasons presented below.

Election/Restriction

Restriction to one of the following inventions is required under 35 U.S.C. § 121:

- I. Claims 1-17, drawn to an apparatus, classified in class 204, subclass 194;
- II. Claims 18-21, drawn to a method, classified in class 205, subclass 252.

The Examiner asserts that inventions I and II are related as process and apparatus for its practice and are distinct from each other because the method of claim 18 can be practiced using an apparatus with electrodes which are not concentrically arranged, as claimed in claim 1.

Applicants herein confirm the election of invention I, claims 1-17, with traverse made by B. Todd Patterson, attorney of record, during a telephone conversation with the Examiner on July 29, 2005. Applicants submit that Groups I and II are appropriately prosecuted in a single application directed to apparatus and method for plating a metal on a substrate, which would not require an additional search by the Examiner. Therefore, reconsideration and withdrawal of the restriction requirement is respectfully requested

Claim Rejections – 35 U.S.C. § 102

Claims 1, 5 and 9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Mayer et al* (U.S. Patent No. 6,773,571, hereafter *Mayer*).

Applicants respectfully traverse this rejection.

Mayer discloses an electroplating cell having an inner anode (125) and an outer anode (127) positioned radially outward the inner anode (125). *Mayer* further teaches distributing plating current between the inner anode(125) and the outer anode (127) (column 3 lines 32-35). The Examiner indicates that the inner anode relates to a plating electrode of the present invention and the outer anode relates to a deplating electrode of the present invention. However, *Mayer* does not teach an outer anode configured to be a deplating electrode.

Additionally, *Mayer* does not teach a deplating electrode having an inner diameter greater than an outer diameter of a substrate being plated in the plating cell. Instead, *Mayer* teaches that the inner anode corresponds to 15-25% of a plating area of a substrate being plated and the outer anode corresponds to 75-85% of the plating area (column 10, lines 7-13). *Mayer* also teaches that it is desirable to shield a circumferential edge (distance 151) of the plating area of the substrate (column 13 lines 21-33, Figures 9-11). In either case, *Mayer* teaches that the outer anode has an inner diameter smaller than the outer diameter of the substrate. Therefore, *Mayer* teaches away from a deplating electrode having an inner diameter greater than an outer diameter of a substrate being plated.

Regarding claim 1, *Mayer* does not teach or suggest an electrochemical plating cell comprising a fluid basin configured to contain a plating solution, an anode fluid volume positioned in a lower portion of the fluid basin; a cathode fluid volume positioned in an upper portion of the fluid basin, an ionic membrane positioned to separate the anode fluid volume from the cathode fluid, a plating electrode centrally positioned in the anode fluid volume, and a deplating electrode positioned radially outward from the plating electrode in the anode fluid volume, wherein the deplating electrode has an inner diameter greater than an outer diameter of a substrate being plated in the plating cell, as recited in amended claim 1, and claims dependent thereon.

Regarding claim 9, *Mayer* does not teach or suggest an electrochemical plating cell comprising an anolyte compartment, a catholyte compartment positioned in ionic communication with the anolyte compartment via a cationic membrane, an anode positioned in the anolyte compartment, and a deplating electrode positioned in the

anolyte compartment, wherein the anode is a disk shaped member, and the deplating electrode circumscribes the anode and has an inner diameter greater than an outer diameter of a substrate plated in the plating cell, recited in amended claim 9, and claims dependent thereon.

Therefore, claims 1, 5 and 9 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claims 6, 7, 16 and 17 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over *Mayer* as evidenced by *Wang* (U.S. Patent No. 6,248,222, hereafter *Wang*).

Applicants respectfully traverse the rejection.

As discussed above, *Mayer* does not teach or suggest the subject matter set forth in claims 1 and 9, on which claims 6-7 and 16-17 are dependent. *Wang* teaches an apparatus for electropolishing or electroplating process (Abstract). However, *Wang* does not teach, show or suggest each and every element as set forth in claims 1 and 9. Therefore, claims 6-7 and 16-17 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 103

Claims 2-4, 8, 10-12 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mayer* in view of *Woodruff* (U.S. Patent No. 6,497,801).

Applicants respectfully traverse the rejection.

As discussed above, *Mayer* does not teach or suggest the subject matter set forth in claims 1 and 9, on which claims 2-4, 8, 10-12 and 15 are dependent.

Woodruff discloses an electroplating apparatus having a plurality of ring-like insoluble anode segments. The combination of *Mayer* and *Woodruff* also does not teach, show or suggest the subject matter set forth in claims 1 and 9, on which claims 2-4,8,10-12 and 15 are dependent on. Therefore, withdrawal of this rejection is respectfully requested.

Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mayer* in view of *Woodruff* as applied to claim 12 above, and further in view of *Lichtenberger et al* (U.S. Patent No. 4,786,390, hereafter *Lichtenberger*).

Applicants respectfully traverse the rejection.

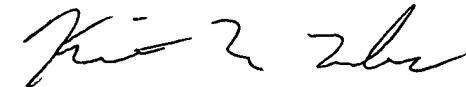
Mayer and *Woodruff* are discussed above. *Lichtenberger* teaches an electroplating bath (20) having a plurality of anode strips (12) used to plate nickel and/or cobalt on a plate (26) positioned between the anode strips (12). The combination of *Mayer*, *Woodruff* and *Lichtenberger* does not teach, show or suggest an electroplating cell set forth in claim 9, on which claims 14 are dependent. Claim 13 has been cancelled. Withdrawal of this rejection is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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